WHAT IS CLAIMED IS:

1. A radiation treatment system comprising:

simulation means (5,6,7) for executing radiation treatment simulation for dividing a radiation exposure region (3) and a peripheral region thereof to be irradiated with particle beams into a plurality of unit radiation exposure regions, and then applying particle beams according to a shape of each divided unit radiation exposure region; and

radiation treatment planning means (4) for obtaining a radiation treatment condition for causing flatness, which is a degree of uniformly irradiating the radiation exposure region with a proper dose of particle beams, to be in a desired range, and a dose of particle beams applied to the unit radiation exposure region of the peripheral region to be minimized, in the case where the simulation means executes the radiation treatment simulation, and then making a radiation treatment plan reflecting the radiation treatment condition.

2. The radiation treatment system according to claim 1, wherein the simulation means divides the radiation exposure region and the peripheral region thereof into unit radiation exposure regions of grid forms.

3. The radiation treatment system according to claim 1, wherein the simulation means divides the radiation exposure region and the peripheral region thereof into belt-like unit radiation exposure regions.

4. The radiation treatment system according to claim 1, wherein the simulation means divides the radiation exposure region and the peripheral region thereof into concentric circular unit radiation exposure regions.

5. The radiation treatment system according to claim 1, wherein when the unit radiation exposure region is located in a boundary of the radiation exposure region, the radiation treatment planning means determines a degree of contribution made by a dose of particle beams applied to the unit radiation exposure region located in the boundary to the radiation exposure region, according to a dose of particle beams applied to the unit radiation exposure region of the peripheral region.

6. A radiation treatment method comprising:

a simulation step for dividing a radiation exposure region (3) and a peripheral region thereof to be irradiated with particle beams into a plurality of unit radiation exposure regions, and then executing radiation treatment simulation according to a shape of each divided unit radiation exposure region;

a radiation treatment planning step for obtaining a radiation treatment condition for causing flatness, which is a degree of uniformly irradiating the radiation exposure region with a proper dose of particle beams, to be in a desired range, and a dose of particle beams applied to the unit radiation exposure region of the peripheral region to be minimized, in the case where the simulation step is executed, and then making a radiation treatment plan reflecting the radiation treatment condition; and

a radiation exposure step for applying particle beams to the radiation exposure region and the peripheral region thereof to be irradiated according to the radiation treatment plan made in the radiation treatment planning step.

7. The radiation treatment method according to claim 6, wherein in the simulation step, the radiation exposure region and the peripheral region thereof are

divided into unit radiation exposure regions of grid forms.

8. The radiation treatment method according to claim 6, wherein in the simulation step, the radiation exposure region and the peripheral region thereof are divided into belt-like unit radiation exposure regions.

9. The radiation treatment method according to claim 6, wherein in the simulation step, the radiation exposure region and the peripheral region thereof are divided into concentric circular unit radiation exposure regions.

10. The radiation treatment method according to claim 6, wherein in the radiation treatment planning step, when the unit radiation exposure region is located in a boundary of the radiation exposure region, determination is made as to a degree of contribution made by a dose of particle beams applied to the unit radiation exposure region located in the boundary to the radiation exposure region, according to a dose of particle beams applied to the unit radiation exposure region of the peripheral region.